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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/944,850 10/06/97 WALT

D TU-97-01

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MMC1/1113

EXAMINER

HANNAHER, C

ART UNIT

PAPER NUMBER

2878

DATE MAILED:

11/13/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/944,850

Applicant(s)

WALT ET AL.

Examiner

Constantine Hannaher

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 22.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

Continued Prosecution Application

1. The request filed on September 14, 2000 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 08/944,850 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 33 recites the limitation "said substrate" in line 1. There is insufficient antecedent basis for this limitation in the claim. The amendment to claim 32 submitted September 14, 2000 removed the antecedent basis for this recitation.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claims 28, 35, 36, and 37 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Pinkel *et al.* (US005690894A).

With respect to independent claim 28, Pinkel *et al.* discloses a method corresponding to the disclosed apparatus (Fig. 4) which comprises a sensor array **14** having subpopulations (the groups of strands **10**) of different sensor elements (sensor ends **11**, where each group may have a different sensor, column 8, lines 50-67). The sensor array **14** has a characteristic optical response signature (column 13, lines 37-39). The method would comprise the steps of measuring the optical response signature of at least two of the sensor elements **11** of at least one of the subpopulations (groups) with detector **20**, and summing the optical response signatures (column 9, lines 12-14 and 21-25). The increase in signal-to-noise ratio is inherent in (necessarily follows from) the identity of the apparatus and method of operation.

With respect to dependent claim 35, the sensor elements (ends **11**) in the method of Pinkel *et al.* comprise chemical functional groups (column 10, lines 28-34).

With respect to dependent claim 36, the sensor elements (ends **11**) in the method of Pinkel *et al.* may comprise oligonucleotides in view of column 10, lines 56-63 and column 3, line 13.

With respect to independent claim 37, Pinkel *et al.* discloses a method corresponding to the disclosed apparatus (Fig. 4) which comprises a sensor array **14** having subpopulations (the groups of strands **10**) of different sensor elements (sensor ends **11**, where each group may have a different sensor, column 8, lines 50-67). The sensor array **14** has a characteristic optical response signature (column 9, lines 26-35). The method would comprise the steps of measuring the optical response signature of at least two of the sensor elements **11** of at least one of the subpopulations (groups) with detector **20**, and summing the optical response signatures (column 9, lines 12-14 and 21-25). The amplification is inherent in (necessarily follows from) the identity of the apparatus and method of operation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 29-31 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinkel *et al.* (US005690894A).

With respect to dependent claim 29, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the baseline of at least one optical response signature in the method of Pinkel *et al.* because the detector system may be employed with a computerized data acquisition system and analytical program (column 12, lines 10-22) and such an adjustment (calibration) is a known and useful step in accurately measuring responses.

With respect to dependent claim 30, any increase in the signal-to-noise ratio is a choice within the ordinary skill in the art at the time the invention was made in view of the number of

fibers **10** fabricated to bear the same species of biological binding molecule (see also column 14, lines 49-63).

With respect to dependent claim 31, any reduction in the analyte detection limit is a choice within the ordinary skill in the art at the time the invention was made in view of the number of fibers **10** fabricated to bear the same species of biological binding molecule (see also column 14, lines 49-63).

With respect to dependent claim 38, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the baseline of at least one optical response signature in the method of Pinkel *et al.* because the detector system may be employed with a computerized data acquisition system and analytical program (column 12, lines 10-22) and such an adjustment (calibration) is a known and useful step in accurately measuring responses.

9. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinkel *et al.* (US005690894A) in view of Lough *et al.* (US005900481A).

With respect to dependent claim 32, the elements in the method of Pinkel *et al.* do not comprise beads, but are instead the ends **11** of the fiber strands **10** which may have a specific shape (column 7, line 56 to column 8, line 3). Lough *et al.* shows that beads are known (Fig. 1) as elements in a sensor array (column 5, lines 62-67). The beads of Lough *et al.* are suitable for the types of binding molecules used and optical response signatures measured in the sensor array **14** of Pinkel *et al.* and further provide the convex surface Pinkel *et al.* identifies as advantageous. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Pinkel *et al.* to specify that the sensor ends **11** therein were bound to beads as suggested by Lough *et al.* (as the fiber strands **10** in Pinkel *et al.* qualify as a support as described by Lough *et al.* at column 3, line 29).

With respect to dependent claim 33, the method of Pinkel *et al.* comprises fiber optic bundle 14 with sensor ends 11. In view of the suggestion of Lough *et al.*, the fiber optic bundle 14 used in the method of Pinkel *et al.* would serve as the insoluble support for the beads at the ends 11.

With respect to dependent claim 34, the method of Pinkel *et al.* further comprises the step of identifying the location of each sensor element 11 within each sensor subpopulation (groups of fiber strands 10) within the array (column 11, lines 5-8).

Response to Submission(s)

10. The amendment filed September 14, 2000 has been entered. The amendments to page 43, lines 19 and 20 have been applied to lines 20 and 21 instead.

11. Applicant's arguments with respect to claims 28-38 have been considered but are moot in view of the new ground(s) of rejection. The repetition of the argument is not persuasive. Although the Examiner does not agree that the application of the Singer *et al.* reference was inappropriate in view of the breadth of the claim terms, and would contend that the multi-zone metering of an SLR camera would perform the steps recited in the independent claims, nevertheless, in preparation for the interview of November 2, 2000, the Examiner considered the information disclosure statement submitted September 14, 2000 and recognized the superiority of the currently applied reference.

There can be no question that the disclosure of Pinkel *et al.* relates to the characteristic optical response signature of a sensor array having subpopulations of different sensor elements exactly as recited in the preamble of the independent claims.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (703) 308-4850. The examiner can normally be reached on Monday-Friday with flexible hours.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook (Robin) Ham can be reached on (703) 308-4090. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and Not Established for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ch
November 9, 2000


Constantine Hannaher
Primary Examiner